

CLAIMS

1. An integrated circuit including a vertical power component having a terminal formed by a chip substrate of a first conductivity type, a control circuit thereof, the control circuit isolated from the substrate by means of an isolation region of a second conductivity type, and a protection structure against polarity inversion of a substrate potential comprising a first bipolar transistor with an emitter connected to said isolation region and a collector connected to a reference potential input of the integrated circuit, a bias circuit for biasing the first bipolar transistor in a reverse saturated mode when the substrate potential is higher than the reference potential, and a second bipolar transistor with an emitter connected to the substrate and a base coupled to the isolation region for coupling the isolation region to the substrate through a high-impedance when the substrate potential is lower than the reference potential.

2. An integrated circuit according to claim 1, wherein said bias circuit comprises a third bipolar transistor with an emitter coupled to control terminal of the integrated circuit and a collector coupled to a base of the first bipolar transistor, said control terminal receiving an external control signal which is used by the control circuit to cause switching of the power component, said control signal being used to provide a voltage supply to the control circuit and to the bias circuit.

3. An integrated circuit according to claim 2, wherein said first bipolar transistor is a vertical transistor having an emitter formed by said substrate, a base formed by a first doped region of the second conductivity type formed in the substrate, and a collector formed by a second doped region of the first conductivity type formed within the first doped region.

4. An integrated circuit according to claim 3, wherein said second and third bipolar transistors are isolated from the substrate by said isolation region.

5. An integrated circuit according to claim 4, wherein said first conductivity type is the N type, said second conductivity type is the P type, said first and second bipolar transistors are NPN transistors, and said third bipolar transistor is a PNP transistor.

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6. An integrated circuit according to claim 1, wherein said vertical power component is a vertical power bipolar transistor.

add

a^2

add
B2